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LIST OF SYMBOLS

λ_B	-	Bragg wavelength
Λ	-	Spatial period (or pitch) of the periodic variation
N_{eff}	-	Effective index for light propagating in a single mode fiber
$A(z)$	-	Forward propagating modes
$B(z)$	-	Backward propagating modes
$\psi(x,y)$	-	Transverse modal field distribution
ω	-	Frequency
β	-	Propagation constant of the mode
$n_g^2(x,y,z)$	-	Refractive index variation along the fiber
K	-	Spatial frequency of the grating
Δn^2	-	Index modulation of the grating
Γ	-	Coupling coefficient
r	-	Radius of the core of FBG
a	-	Radius of the cladding of FBG
l	-	Length of the grating
R	-	Reflectivity of the grating
n_2	-	Kerr coefficient
$\delta n_g(z)$	-	Periodic index variation inside the grating
$n_2 I$	-	Nonlinear index change
$\bar{n}$	-	Average refractive index of the medium
$\varepsilon(z)$	-	Perturbed permittivity
$E_{f,b}(z,t)$	-	Forward and backward propagating waves

κ	-	Coupling between the forward and backward propagating waves in the FBG
k_i	-	Incident wavevector
K	-	Grating wavevector
k_f	-	Wavevector of the scattered radiation
n_{eff}	-	Effective refractive index of the fiber core at free space center wavelength
Δn	-	Amplitude of the induced refractive index perturbation formed in the core of the fiber
z	-	Distance along the fiber in longitudinal axis
$R(l,\lambda)$	-	Reflectivity
λ	-	Wavelength
Ω	-	Coupling coefficient
Δk	-	Detuning wavevector
K	-	Propagation constant
M_p	-	Fraction of the fiber mode power contained by the fiber core
V	-	Normalized frequency of the fiber
n_{co}	-	Core radius
n_{cl}	-	Cladding radius
λ_w	-	Irradiation wavelength
φ	-	Intersecting beams
Λ_g	-	Period of the grating
Λ_{pm}	-	Period of the phase mask
Λ_g	-	Period of fringes
λ_{uv}	-	UV wavelength
N	-	Number of grating
$\overline{P}_{unperturbed}$	-	Unperturbed polarization
$\overline{P}_{grating}$	-	Perturbed polarization
μ	-	Transverse mode number
$\hat{e}_z$	-	Unit vector along the propagation direction z
$\delta_{\mu\upsilon}$	-	Kronecker's delta

$\vec{E}$	-	Electric field vectors
$\vec{H}$	-	Magnetic field vectors
$\vec{D}$	-	Displacement vectors
$\vec{B}$	-	Flux density
c	-	Speed of light
$\vec{E}(z,t)$	-	Electric field
ω_0	-	Central frequency
k_0	-	Wavenumber
P_0	-	Total power inside the grating
e_f	-	Forward propagating modes
e_b	-	Backward propagating modes
Γ_s	-	Self Phase Modulation
Γ_x	-	Cross-phase modulation effects
C	-	Constant of integration
$\hat{\delta}$	-	Detuning parameter
$V(A_0)$	-	Potential energy distribution in a FBG structures while the light propagating through the grating structures

LIST OF APPENDICES